Center for Irrigation Technology

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MEMO TO: David Zoldoske, Director
The Center for Irrigation Technology

COMMENTS ON: 597. Agricultural Water Measurement

REF: California Code of Regulations
Title 23. Waters
Chapter 5.1. Water Conservation Act of 2009
Article 2. Agricultural Water Measurement

DATE: March 23, 2011

BY: Ed Norum, Agricultural Engineer/CIT

597 1) Accuracy. If as stated in notes: 1, "A volumetric water pricing structure" is to be used. Measurements of flow rate and velocity are then of no intrinsic value. There must be a mechanism for integrating flow rate and velocity over a cross-sectional area and/or time.

597.3 a) All certified calibrations must be made over a range of flow rates that is defined by the customer and meets the water suppliers contractual obligations.

597.3 b) 1) "Accurate at least within ± 3% by flow rate." Suggest changing this to ± 6%.

597.3 B) 1) "Account for differences in water use." Suggest including a moisture balance calculation in the apportioning of flows calculation.

597.4 a) iii) "Field testing of a sample of existing devices." To the extent that they were formed in the early 20th century, irrigation districts reflect the technology of that era. As relates to water storage facilities and main canal distribution systems, the technology originally incorporated is still functional. The technology incorporated into the control and measurement of flows to individual delivery points however is being influenced by changes in the infield distribution system. Farmers are changing from flood to pressurized sprinkler or drip systems. This generally results in smaller supply flows required for longer periods of time. An oversized delivery point flow meter tends to under record small flow rates. This suggests that individual farm delivery points must be re-engineered giving consideration to flow regime changes affecting the choice of metering devices. Under these conditions, a

testing of a sample of existing devices will not meet the fundamental objectives of this article.

597.4 b) "Performance Requirements." Require the agricultural water suppliers to review the device specification when the customer makes a major change in the on-farm irrigation infrastructure such as the installation of an operational storage reservoir or a change in the infield distribution technology.

597.5 c) Add: All protocols used to derive a volume delivered value from measurements of flow rate, velocity, head, cross-sectional area, and delivery time must have a demonstrated accuracy of ± 10% of the actual volume-delivered value.

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